

Environmental factors that affect plant growth and development include temperature, moisture

Temperature

Temperature affects the rate of photosynthesis and the rate of respiration.

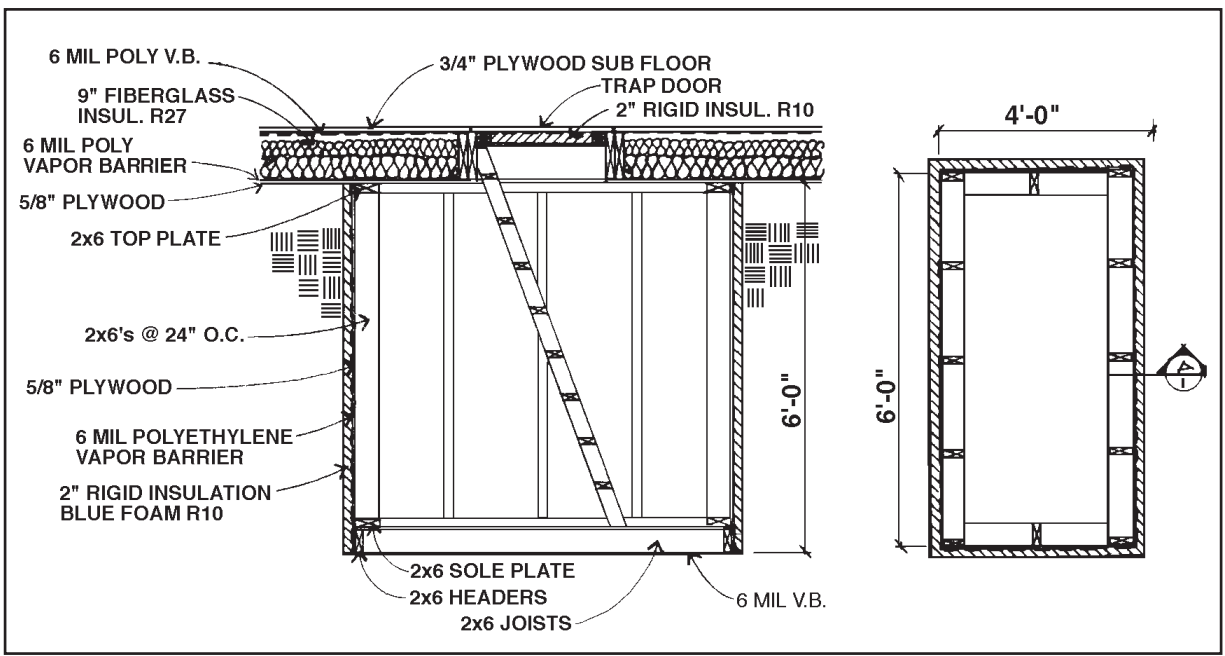


Figure 1. Example of a blueprint for below-ground root cellar

skin produce, including beets, carrots, and turnips, are harvested leaving a 1/2-inch stem and stored to retain moisture. This can be done with packing material or perforated plastic bags. Layer vegetables in packing materials such as moist sawdust, sand and peat moss.

Leafy vegetables such as cabbages, cauliflowers, and chard should be lined out of the garden with roots attached and replanted in moist packing material. Vegetables with strong odors, such as cabbages and chard, are best when individually wrapped in newspaper to prevent drying out and to reduce smells.

Potatoes and onions need a cold, moist storage condition. Potatoes need to be cured in a warm environment before cold storage. Harvest potatoes late in the season and store in the dark at a warm temperature for 7 to 10 days to allow them to dry and develop thick skins. Then move them to a cold, dark area. If potatoes are stored together in crates or boxes, they will share moisture and keep each other from shriveling. Do not store potatoes above 40°F or they will begin to sprout.

Tomatoes are harvested leaving a short stem attached. Place tomatoes one layer deep in a shallow

box and cover with newspaper to keep them from drying out.

Onions, like potatoes, are cured for several weeks after harvest. This allows the skin to become papery and the roots to shrivel. Onions are best stored in a cool, dry location with good air circulation. Onions are often braided or put in a mesh bag and hung from the ceiling of the root cellar.

Winter squash, acorn squash, and butternut squash are best stored in a dry, warm spot such as the corner of a room indoors. Cut as late as possible before a frost, leaving a 2-inch-long stem. The more mature, the thicker the skin and more resistant to decay and drying out the vegetables will be. If stored in a moist location, squash will quickly mold.

Building a root cellar

A root cellar should be cold, dark and damp and in a convenient location. It is easier to control temperature and humidity in a small cellar. Most families can get by with an area 4 feet by 6 feet in size. The most convenient location may be a walled-off part of a basement or garage area with a window for ventilation. A common location in rural Alaska is in the door of the kitchen. With an inside installation, be sure to put a vapor barrier towards the inside of the root cellar to protect the

rest of the house from excess moisture and rot.

In both attached and separate structures select wood designed for direct burial for the walls and floor. Check with the supplier to be sure that the wood treatment is not toxic in this application. Uninsulated masonry walls will conduct the cool ground temperature into your root cellar and are very durable. Water drainage is important for keeping out surface water in the spring and during summer rains. Insulate above-ground walls to protect from cold temperatures in winter and warm temperatures in summer. Be aware that seasonal frost can extend over 4 feet deep seasonally into the soil. Keep this in mind and make sure that the insulation extends below the frost line.

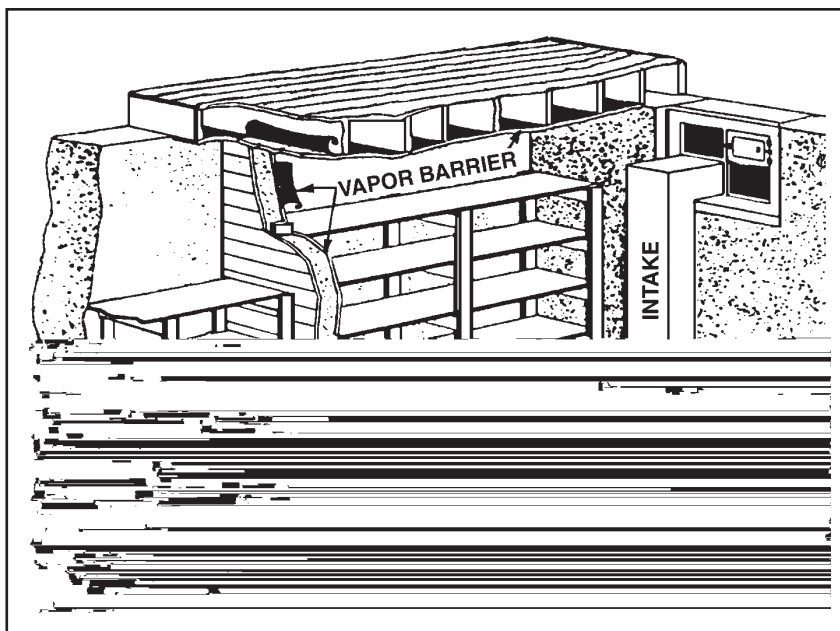


Figure 2. A well-insulated room in the basement can provide good cool, moist storage for vegetables.

Storage Time and Temperature for Some Vegetables Grown in Alaska

Vegetables	Temp F.	% Humidity	Storage Time	Comments
				Late maturing varieties **
				-inch stem *
Cauliflower				Wrap in leaves *
				Dig with roots ***
				Dig with roots ***
				Waxed or moist packing *
				Trim leaves *
				-inch stem *
				Waxed or moist packing *

*

** Wrap in clean newspaper.

*** Replant in moist sand.

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